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# PLANETARY PHENOMENA FOR JULY AND AUGUST, 1912.

By Malcolm McNeill.

PHASES OF THE MOON, PACIFIC TIME.

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| Last Quarter | July 7, | 8$^h$ 47$^m$ A.M. | Last Quarter | Aug. 5, | 8$^h$ 18$^m$ P.M. |
| New Moon | " 14, | 5 13 A.M. | New Moon | " 12, | 11 58 A.M. |
| First Quarter | " 20, | 9 18 P.M. | First Quarter | " 19, | 8 57 A.M. |
| Full Moon | " 28, | 8 28 P.M. | Full Moon | " 27, | 11 59 A.M. |

The Earth is in aphelion at 3 P. M. July 4th, Pacific time.

The present two months' period is the best time of the year for naked-eye observation of *Mercury*. It is an evening star up to the morning of August 22d, and during the entire month of July sets an hour or more after the Sun. It reaches greatest east elongation on July 26th and is then 27° east of the Sun. This maximum elongation is considerably greater than the average, as it occurs only four days before aphelion, and, while the planet is a few degrees south of the Sun, the interval between the settings of the two bodies is not materially decreased on this account. It is in conjunction with *Venus* on August 14th, *Mercury* being 7° to the south of *Venus* and too near the Sun for naked-eye view, although *Venus* can probably be made out on that date, being very much brighter and farther north than *Mercury*.

*Venus* passes superior conjunction with the Sun and becomes an evening star on July 5th. It will remain an evening star until the following spring. After passing conjunction its distance from the Sun increases rather slowly, so that by August 1st it sets a little less than half an hour after sunset and this interval increases only a quarter of an hour during August. The planet will therefore not be a conspicuous object at any time during the period, but its brightness, even though it is now nearly at its minimum, will probably permit it being seen shortly after sunset during the latter half of August. It is in conjunction with *Neptune* on July 13th, but both are too near the Sun to be seen.

*Mars* is still to be seen in the western sky in the evening, but the Sun is gradually overtaking it in their common eastward journey. It sets at a little before 10 P. M. on July 1st and at about 7:20 P. M. on September 1st, rather less than an hour after sunset and too near the Sun for naked-eye view. It moves 36° eastward and 15° southward from *Cancer* nearly through *Leo*. On July 14th it passes north of the first-magnitude star *Regulus, α Leonis,* at a distance only a little more than the Moon's apparent diameter. The planet will be only about half as bright as the star. The distance of the planet from the Earth is still increasing, but has nearly reached its maximum at the end of August. The planet's brightness is therefore at about its minimum, and during the period it will be about as bright as a second-magnitude star. The pole star is the standard star of that magnitude.

*Jupiter* remains above the horizon until about 2:30 A. M. on July 1st and until about 9:30 P. M. on August 30th. It moves about 1° 30′ westward during July and shortly after August 1st begins to move eastward, reaching on August 31st almost exactly the same position among the stars it held on July 1st, being about half the Moon's apparent diameter southward. It is in the constellation *Scorpio* about 6° north of its principal star, *Antares*. Its brightness during August diminishes slightly, but not enough to be perceptible without careful measurement.

*Saturn* rises at a little after 2 A. M. on July 1st and shortly before 10:30 P. M. on August 31st. It is in the constellation *Taurus* and moves about 5° eastward during the period, being at the end of the time about 5° west and north of *Aldebaran,* the principal star of the constellation. The planet will be not quite one magnitude brighter than the star, but its color is much more dull.

*Uranus* comes to opposition with the sun on July 24th and is then in range of view throughout the entire night. It moves about 2° westward in the constellation *Capricornus*. No bright stars are near it, but two fifth-magnitudes, *π* and *ρ Capricorni,* are not far away. The stars are about the Moon's diameter apart and *Uranus* on July 1st is about 1° west and a slightly greater amount south of the stars. During the month it increases its distance from them.

*Neptune* is in conjunction with the Sun on the morning of July 16th and becomes a morning star.